

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				Complete if Known	
				Application Number	
				Filing Date	
				First Named Inventor	
				Group Art Unit	
				Examiner Name	
				Attorney Docket Number	
				IMMR-060/04US	
U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY
		Number	Kind Code ² (if known)		
<div style="display: flex; align-items: center; justify-content: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; margin-right: 5px;">↓</div> <div style="text-align: center;">/MS/</div> </div>	A1	6,300,936		Braun et al.	10/09/2001
	A2	6,275,213		Tremblay et al.	08/14/2001
	A3	6,256,011		Culver	07/03/2001
	A4	6,243,078		Rosenberg	06/05/2001
	A5	6,219,032		Rosenberg et al.	04/17/2001
	A6	6,211,861		Rosenberg	04/03/2001
	A2	6,198,206		Saarmaa et al.	03/06/2001
	A3	6,184,868		Shahoian et al.	02/06/2001
	A4	6,166,723		Schena et al.	12/26/2000
	A5	6,154,201		Levin et al.	11/28/2000
	A6	6,128,006		Rosenberg et al.	10/03/2000
	A7	6,100,874		Schena et al.	08/08/2000
	A8	6,088,019		Rosenberg	07/11/2000
	A9	6,078,308		Rosenberg et al.	06/20/2000
	A10	6,044,646		Silverbrook	04/04/2000
	A11	6,028,593		Rosenberg et al.	02/22/2000
	A12	6,001,014		Ogata et al.	12/14/1999
	A13	5,990,869		Kubica et al.	11/23/1999
	A14	5,986,643		Harvill et al.	11/16/1999
	A15	5,984,880		Lander et al.	11/16/1999
	A16	5,979,892		Smith	11/09/1999
	A17	5,973,689		Gallery	10/26/1999
	A18	5,973,670		Barber et al.	10/26/1999
	A19	5,959,613		Rosenberg et al.	09/28/1999
	A20	5,956,016		Kuenzner et al.	09/21/1999
	A21	5,914,705		Johnson et al.	06/22/1999
	A22	5,903,085		Karam	05/11/1999
	A23	5,897,437		Nishiumi et al.	04/27/1999
	A24	5,894,263		Shimakawa et al.	04/13/1999
	A25	5,889,670		Schuler et al.	03/30/1999
	A26	5,857,986		Moriyasu	01/12/1999
	A27	5,825,308		Rosenberg	10/20/1998
	A28	5,805,140		Rosenberg et al.	09/08/1998
	A29	5,790,108		Salcudean et al.	08/04/1998
	A30	5,785,630		Bobick, et al.	07/28/1998
	A31	5,784,052		Keyson	07/21/1998
	A32	5,781,172		Engel et al.	07/14/1998
	A33	5,766,016		Sinclair et al.	06/16/1998
	A34	5,754,023		Roston et al.	05/19/1998
A35	5,742,278		Chen et al.	04/21/1998	
A36	5,736,978		Hasser et al.	04/07/1998	
A37	5,734,373		Rosenberg et al.	03/31/1998	
A38	5,714,978		Yamanaka et al.	02/03/1998	
A39	5,709,219		Chen et al.	01/20/1998	

¹ Unique citation designation number.

² See attached Kinds of U.S. Patent Documents.

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/MS/	A40	5,696,537		Solhjell	12/09/1997
	A41	5,691,747		Amano	11/25/1997
	A42	5,684,722		Thorner et al.	11/04/1997
	A43	5,666,138		Culver	09/09/1997
	A44	5,643,087		Marcus et al.	07/01/1997
	A45	5,642,469		Hannaford et al.	06/24/1997
	A46	5,629,594		Jacobus et al.	05/13/1997
	A47	5,625,576		Massie et al.	04/29/1997
	A48	5,589,828		Armstrong	12/31/1996
	A49	5,583,478		Renzi	12/10/1996
	A50	5,565,840		Thorner et al.	10/15/1996
	A51	5,547,382		Yamasaki et al.	08/20/1996
	A52	5,542,672		Meredith	08/06/1996
	A53	5,506,605		Paley	04/09/1996
	A54	5,489,812		Furuhata et al.	02/06/1996
	A55	5,466,213		Hogan et al.	11/14/1995
	A56	5,451,924		Massimino et al.	09/19/1995
	A57	5,440,183		Denne	08/08/1995
	A58	5,414,337		Schuler	05/09/1995
	A59	5,405,152		Katanics et al.	04/11/1995
	A60	5,399,091		Mitsumoto	03/21/1995
	A61	5,388,992		Franklin et al.	02/14/1995
	A62	5,334,027		Wherlock	08/02/1994
	A63	5,309,140		Everett, Jr., et al.	05/03/1994
	A64	5,299,810		Pierce et al.	04/05/1994
	A65	5,296,871		Paley	03/22/1994
	A66	5,275,174		Cook	01/04/1994
	A67	5,271,290		Fischer	12/21/1993
	A68	5,240,417		Smithson et al.	08/31/1993
	A69	5,212,473		Louis	05/18/1993
	A70	5,203,563		Loper, III	04/20/1993
	A71	5,186,629		Rohen	02/16/1993
	A72	5,185,561		Good et al.	02/09/1993
	A73	5,184,319		Kramer	02/02/1993
	A74	5,146,566		Hollis, Jr. et al.	09/08/1992
	A75	5,078,152		Bond et al.	01/07/1992
	A76	5,038,089		Szakaly	08/06/1991
	A77	5,035,242		Franklin et al.	07/30/1991
	A78	5,022,407		Horch et al.	06/11/1991
	A79	5,019,761		Kraft	05/28/1991
	A80	4,949,119		Moncrief et al.	08/14/1990
	A81	4,934,694		McIntosh	06/19/1990
	A82	4,930,770		Baker	06/05/1990
	A83	4,896,554		Culver	01/30/1990
	A84	4,891,764		McIntosh	01/02/1990
	A85	4,868,549		Affinito et al.	09/19/1989
	A86	4,795,296		Jau	01/03/1989
	A87	4,794,392		Selinko	12/27/1988
	A88	4,787,051		Olson	11/22/1988
	A89	4,731,603		McRae et al.	03/15/1988
	A90	4,713,007		Alban	12/15/1987
	A91	4,708,656		de Vries et al.	11/24/1987
	A92	4,599,070		Hladky et al.	07/08/1986
	A93	4,581,491		Boothroyd	04/08/1986
V	A94	4,550,617		Fraigner et al.	11/05/1985
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/MS/	A95	4,513,235		Acklam et al.	04/23/1985
↓	A96	4,414,984		Zarudiansky	11/15/1983
	A97	4,236,325		Hall et al.	12/02/1980
	A98	4,160,508		Salisbury, Jr.	07/10/1979
	A99	3,919,691		Noll	11/11/1975
	A100	3,911,416		Feder	10/07/1975
	A101	3,903,614		Diamond et al.	09/09/1975
	A102	3,902,687		Hightower	09/02/1975
	A103	3,623,064		Kagan	11/23/1971
	A104	3,517,446		Corlyon et al.	06/30/1970
↓	A105	3,497,668		Hirsch	02/24/1970
	A106	3,220,121		Cutler	11/30/1965
↓	A107	3,157,853		Hirsch	11/17/1964

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No. ¹	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	T ⁴
		Office ¹	Number ²	Kind Code ³ (if known)			
/MS/	B1		WO 00/03319			01/20/2000	
↓	B2		WO 98/32112			07/23/1998	
	B3		WO-97/31333			08/28/1997	
	B4		WO 95/20788			08/03/1995	
	B5		0 626 634	A2		11/30/1994	
	B6		0 607 580	A1		07/27/1994	
	B7		H5-86387			11/22/1993	
	B8		WO 92/00559			01/09/1992	
↓	B9		0 349 086	A1	Stork Kwant B.V.	01/03/1990	
	B10		0 265 011	A1		04/27/1988	
↓	B11		S62-194389			12/10/1987	

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
/MS/	C1	Baigrie, "Electric Control Loading – A Low Cost, High Performance Alternative," <i>Proceedings of Interservice/Industry Training Systems Conference</i> , pp. 247-254, November 6-8, 1990	
/MS/	C2	Iwata, "Pen-based Haptic Virtual Environment," 0-7803-1363-1/93 IEEE, pp. 287-292, 1993	
/MS/	C3	Russo, "The Design and Implementation of a Three Degree of Freedom Force Output Joystick," <i>MIT Libraries Archives</i> pp. 1-131, May 1990, archived 8/14/90	

¹ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

² For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

³ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

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For the NPL to be considered, a date/year is needed.

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OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS					
/MS/	C4	Brooks et al., "Hand Controllers for Teleoperation - A State-of-the-Art Technology Survey and Evaluation," <i>JPL Publication 85-11</i> , NASA-CR-175890; N85-28559, pp. 1-84, 03/1/1985			
	C5	Jones et al., "A perceptual analysis of stiffness," ISSN 0014-4819 Springer International (Springer-Verlag); <i>Experimental Brain Research</i> , Vol. 79, No. 1, pp. 150-156, 1990			
	C6	Burdea et al., "Distributed Virtual Force Feedback, Lecture Notes for Workshop on Force Display in Virtual Environments and its Application to Robotic Teleoperation," 1993 <i>IEEE International Conference on Robotics and Automation</i> , pp. 25-44, 05/02/1993			
	C7	Snow et al., "Model-X Force-Reflecting-Hand-Controller," NT Control No. NPO-17851; JPL Case No. 7348, pp. 1-4 with 45 pages of attachments, 06/15/1989			
	C8	Ouh-Young, "Force Display in Molecular Docking," Doctoral Dissertation, University of North Carolina at Chapel Hill, UMI Order No. 9034744, p. 1-369, 1990			
	C9	Tadros, "Control System Design for a Three Degree of Freedom Virtual Environment Simulator Using Motor/Brake Pair Actuators," <i>MIT Archive</i> , pp. 1-88, February 1990, archived 8/13/90			
	C10	Caldwell et al., "Enhanced Tactile Feedback (Tele-Taction) Using a Multi-Functional Sensory System," 1050-4729/93, pp. 955-960, 1993			
	C11	Adelstein et al., "Design and Implementation of a Force Reflecting Manipulandum for Manual Control research," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 1-12, 1992			
	C12	Gutow et al., "Controlled Impedance Test Apparatus for Studying Human Interpretation of Kinesthetic Feedback," WAI11-11:00, pp. 332-337			
	C13	Stanley et al., "Computer Simulation of Interacting Dynamic Mechanical Systems Using Distributed Memory Parallel Processors," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 55-61, ASME 1992			
	C14	Russo, "Controlling Dissipative Magnetic Particle Brakes in Force Reflective Devices," DSC-Vol. 42, <i>Advances in Robotics</i> , pp. 63-70, ASME 1992			
	C15	Kontarinis et al., "Display of High-Frequency Tactile Information to Teleoperators," <i>Telemanipulator Technology and Space Telerobotics</i> , Won S. Kim, Editor, Proc. SPIE Vol. 2057, pp. 40-50, Sep. 7-9, 1993			
	C16	Patrick et al., "Design and Testing of A Non-reactive, Fingertip, Tactile Display for Interaction with Remote Environments," <i>Cooperative Intelligent Robotics in Space</i> , Rui J. deFigueiredo et al, Editor, Proc. SPIE Vol. 1387, pp. 215-222, 1990			
	C17	Adelstein, "A Virtual Environment System For The Study of Human Arm Tremor," <i>Ph.D. Dissertation</i> , Dept. of Mechanical Engineering, MIT, June 1989, archived 3/13/90			
	C18	Bejczy, "Sensors, Controls, and Man-Machine Interface for Advanced Teleoperation," <i>Science</i> , Vol. 208, No. 4450, pp. 1327-1335, 1980			
	C19	Bejczy et al., "Generalization of Bilateral Force-Reflecting Control of Manipulators," <i>Proceedings Of Fourth CISM-IFTOMM</i> , Sep. 8-12, 1981			
	C20	McAfee et al., "Teleoperator Subsystem/Telerobot Demonstrator: Force Reflecting Hand Controller Equipment Manual," <i>JPL</i> 1988, JPL D-5172			
	C21	Minsky, "Computational Haptics: The Sandpaper System for Synthesizing Texture for a Force-Feedback Display," <i>Ph.D. Dissertation</i> , MIT, June 1995, archived 7/6/95			
	C22	Jacobsen et al., "High Performance, Dexterous Telerobotic Manipulator With Force Reflection," <i>Intervention/ROV '91 Conference & Exposition</i> , Hollywood, Florida, May 21-23, 1991			
	C23	Shimoga, "Finger Force and Touch Feedback Issues in Dexterous Telemanipulation," <i>Proceedings of Fourth Annual Conference on Intelligent Robotic Systems for Space Exploration</i> , Rensselaer Polytechnic Institute, Sep. 30- Oct. 1, 1992			
	C24	IBM Technical Disclosure Bulletin, "Mouse Ball-Actuating Device With Force and Tactile Feedback," Vol. 32, No. 9B, February 1990			
	C25	Terry et al., "Tactile Feedback In A Computer Mouse," <i>Proceedings of Fourteenth Annual Northeast Bioengineering Conference</i> , University of New Hampshire, March 10-11, 1988			
V	C26	Howe, "A Force-Reflecting Teleoperated Hand System for the Study of Tactile Sensing in Precision Manipulation," <i>Proceedings of the 1992 IEEE International Conference on Robotics and Automation</i> , Nice, France, May 1992			
/MS/	C27	Eberhardt et al., "OMAR - A Haptic display for speech perception by deaf and deaf-blind individuals," <i>IEEE Virtual Reality Annual International Symposium</i> , Seattle, WA, Sep. 18-22, 1993			

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/MS/	C28	Rabinowitz et al., "Multidimensional tactile displays: Identification of vibratory intensity, frequency, and contractor area," <i>Journal of The Acoustical Society of America</i> , Vol. 82, No. 4, October 1987	
↓	C29	Bejczy et al., "Kinesthetic Coupling Between Operator and Remote Manipulator," <i>International Computer Technology Conference, The American Society of Mechanical Engineers</i> , San Francisco, CA, August 12-15, 1980	
↓	C30	Bejczy et al., "A Laboratory Breadboard System For Dual-Arm Teleoperation," <i>SOAR '89 Workshop, JSC</i> , Houston, TX, July 25-27, 1989	
↓	C31	Ouhyoung et al., "A Low-Cost Force Feedback Joystick and Its Use in PC Video Games," <i>IEEE Transactions on Consumer Electronics</i> , Vol. 41, No. 3, August 1995	
↓	C32	Marcus, "Touch Feedback in Surgery," <i>Proceedings of Virtual Reality and Medicine The Cutting Edge</i> , Sep. 8-11, 1994	
↓	C33	Bejczy, et al., "Universal Computer Control System (UCCS) For Space Telerobots," CH2413-3/87/0000/0318501.00 1987 IEEE, 1987	
↓	C34	Rosenberg et al., "The Use of Force Feedback to Enhance Grphical User Interfaces," <i>Stereoscopic Displays & Virtual Reality Systems III</i> (1996), Proc. SPIE 2653, pp. 243-248	
↓	C35	Schmult et al., "Application Areas for A Force-Feedback Joystick," DSC-Vol. 49, Advances in Robotics, Mechatronics, and Haptic Interfaces, ASME 1993, pp. 47-54	
↓	C36	Ellis et al., "Design and Evaluation of a High-Performance Prototype Planar Haptic Interface," DSC-Vol. 49, Advances in Robotics, Mechatronics, and Haptic Interfaces, ASME Dec. 1993, pp. 55-65	
↓	C37	Hannaforde et al., "Force-Feedback Cursor Control," NASA Tech Brief, Vol. 13, No. 11, Item #21, Jet Propulsion Lab., Nov. 1989	
↓	C38	Iwata, H., "Artificial Reality with Force-Feedback: Development of Desktop Virtual Space with Compact Master Manipulator," <i>Computer Graphics</i> , Vol. 24, No. 4, Aug. 1990, pp. 165-170	
↓	C39	Ramstein et al., "The Pantograph: A Large Workspace Haptic Device for a Multimodal Human-Computer Interaction," <i>Computer-Human Interaction, CHI '94</i>	
↓	C40	Rosenberg et al., "Commercially Viable Force Feedback Controller for Individuals with Neuromotor Disabilities," USAF Armstrong Lab., May 1996	
↓	C41	Rosenberg, L., "A Force Feedback Programming Primer - For PC Gaming Peripherals Supporting I-Force 2.0 and Direct - X 5.0," Immersion Corporation, 1997	
↓	C42	Hasser, C., "Tactile Feedback For a Force-Reflecting Haptic Display," School of Engineering Univ. of Dayton, Dec. 1995	
↓	C43	Hasser, C., "Tactile Feedback With Adaptive Controller for a Force-Reflecting Haptic Display - Part 1: Design," IEEE 0-7803-3131, Jan. 1996	
↓	C44	Dennerlein, Jack T. et al., "Vibrotactile Feedback for Industrial Telemanipulators," 6 th Ann. Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems, ASME IMECE, Nov. 1997	
↓	C45	Akamatsu, M. et al., "Multimodal Mouse: A Mouse-Type Device With Tactile and Force Display," <i>Presence</i> , Vol. 3, No. 4, Winter 1994, pp. 73-80	
↓	C46	Kelley, A.J. et al., "MagicMouse: Tactile and Kinesthetic Feedback in the Human-Computer Interface Using an Electromagnetically Actuated Input/Output Device," Dept. of Elec. Eng. Univ. of British Columbia, Oct. 1993, pp. 1-27	
↓	C47	Ramstein, C., "Combining Haptic and Braille Technologies: Design Issues and Pilot Study," ACM 0-89791-776 Jun. 1996, pp. 37-44	
↓	C48	Payette, J. et al., "Evaluation of a Force Feedback (Haptic) Computer Pointing Device in Zero Gravity," DSC-Vol. 58, Proc. Of ASME Dynamics Systems and Control Division, ASME 1996, pp. 547-553	
↓	C49	Wiker, S. et al., "Development of Tactile Mice for Blind Access to Computers: Importance of Stimulation Locus, Object Size, and Vibrotactile Display Resolution," Proc. of Human Factors Society 35 th Annual Meeting 1991, pp. 708-712	
↓	C50	Minsky, M. et al., "Feeling and Seeing: Issues in Force Display," ACM 089791-351-5, 1990, pp. 235-242, 270	

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